Work Order ID 58157

Item ID: D4054-009   Accept   Setup **Start**

Revision ID:

Item Name: Tube Assembly   **Stop**

Start Date:	4/26/10	**Start Qty:** 8.00	**Cust Item ID:**
Required Date:	5/04/10	**Req'd Qty:** 8.00	**Customer:**

Reference:

Approvals: **Process Plan:** _____   **Date:** _____   **Tooling:** _____   **Date:** _____   **Run Start**

QC: _____   **Date:** _____   **SPC (Y/N):** _____   **Date:** _____   **Stop**

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp

Draw Nbr	Revision Nbr
D4054	A

100		0.00
Small Fab	Small Fab	
Small Fab	**Memo**	0.00
	Bend tube as per Dwg D4054	
	Install sleeves and nuts	
	Flare ends as per Dwg D4054.	

=7 M. h 10/05/14

110	QC5- Inspect part completeness to step on W/O	0.00
QC		
Quality Control	**Memo**	0.00

(8X)

(X8)

Dart Aerospace Ltd

W/O:			WORK ORDER CHANGES						
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:			WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP		Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
				Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Item ID:	D4054-009		Accept		Setup	Start	
Revision ID:							
Item Name:	Tube Assembly					Stop	
Start Date:	4/26/10	Start Qty: 8.00		Cust Item ID:			
Required Date: 5/04/10		Req'd Qty: 8.00		Customer:			
Reference:							

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____

QC: _____ Date: _____ SPC (Y/N): _____ Date: _____

Run Start

Stop

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120	Identify as per dwg & Stock Location: ___	0.00							
Packaging	Memo	0.00				10-5-24	(8)		
Packaging									
130	QC21- Final Inspection - Work Order Release	0.00							
QC	Memo	0.00				10/05/18			
Quality Control									

RS 10-5-12

Dart Aerospace Ltd

WORK ORDER CHANGES

W/O:								
DATE	**STEP**		**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

WORK ORDER NON-CONFORMANCE (NCR)

NCR:				**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
DATE	**STEP**		**Description of NC** Section A	**Initial** Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE

Work Order ID: 58157

Parent Item: D4054-009

Parent Item Name: Tube Assembly

Comments: IPP rev A 10.01.19 new issue EC verified by:DD

Start Date: 4/26/10   **Required Date:** 5/04/10

Start Qty: 8.00   **Required Qty:** 8.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
AN818-8D		Purchased	No			100	Each	29.0000	8.0000			
Nut												

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST331	29	
113795	9	
114382	20	

(handwritten: 10/05/14   8X m. l)

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick
M6061T6T0.500W.049		Purchased	No	100	f	21.6072	4.6316
6061-T6 RD Tube .500 x.049W							

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
MAT014	21.6072	
111028	16.5895	
111944	5.0177	

(handwritten: M 114530   4-6316   m-l   10/05/14)

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick
MS20819-8D		Purchased	No	100	Each	40.0000	8.0000
Sleeve							

Warehouse Location	Loc Qty	Loc Code
Main Warehouse		
ST323	40	
113795	40	

(handwritten: 8X m.l   10/05/04)

Dart Aerospace Ltd

WORK ORDER CHANGES

| W/O:								
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

WORK ORDER NON-CONFORMANCE (NCR)

NCR:				Corrective Action	Section B			Verification	Approval	Approval
DATE	STEP		Description of NC Section A	Initial Chief Eng	Action Description Chief Eng		Sign & Date	Section C	Chief Eng	QC Inspector

NOTE: Date & initial all entries

ITEM NO.	QTY -001	P/N	DESCRIPTION
1	X	D4054-001	TUBE ASSEMBLY
2	2	MS20819-8D	SLEEVE
3	2	AN818-8D	NUT

R1.50 TYP

— 3.00 —

74° TYP

⌀0.650 TYP

⌀0.500 REF

16.38

wlo
58157
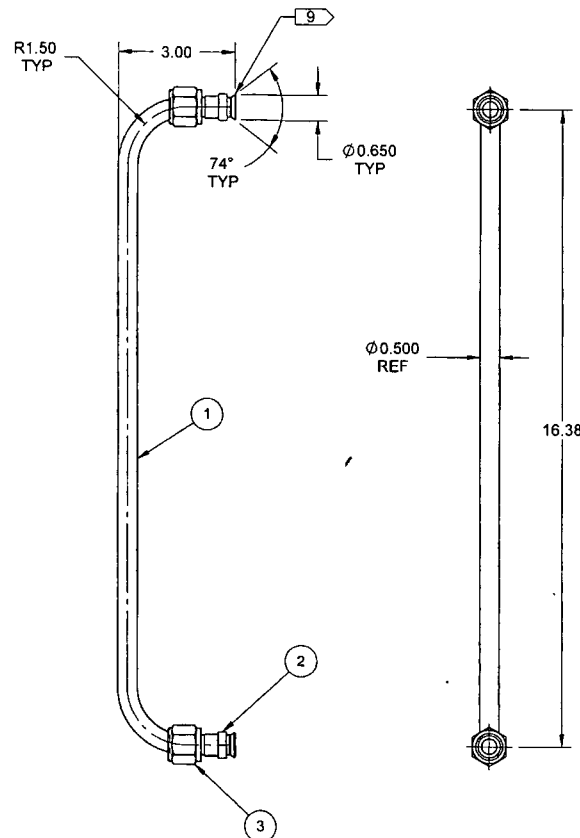
D4054-001 TUBE ASSEMBLY

NOTES:
1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.500 O.D. x 0.049 WALL
   PER WW-T-700/6
   REF DART SPEC M6061T60.500W.049
2) FINISH: NONE
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4054-001" USING FINE POINT PERMANENT INK MARKER
7) WEIGHT: 0.20 lbs
8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D4054-001T1
9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS, TYPICAL
10 ENSURE SEAMLESS TUBING IS USED

REV.	DESCRIPTION		BY	DATE
A	NEW ISSUE		RF	09.12.30

		DART AEROSPACE LTD
DESIGN	RF	HAWKESBURY, ONTARIO, CANADA
DRAWN	RF	
CHECKED		DRAWING NO.
MFG. APPR.		D4054
APPROVED		
DE APPR.		TITLE
DATE	09.12.30	TUBE ASSEMBLIES

REV. A
SHEET 1 OF 3
SCALE
NTS

Dart Aerospace Ltd

| W/O:			WORK ORDER CHANGES						
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:			WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP		Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
				Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

ITEM	QTY -003	P/N	DESCRIPTION
1	X	D4054-003	TUBE ASSEMBLY
2	2	MS20819-8D	SLEEVE
3	2	AN818-8D	NUT

2.76

45°

16.38

⌀0.500 REF

R1.50 TYP

9

3

2

⌀0.650 TYP

5.25

74° TYP

D4054-003 TUBE ASSEMBLY
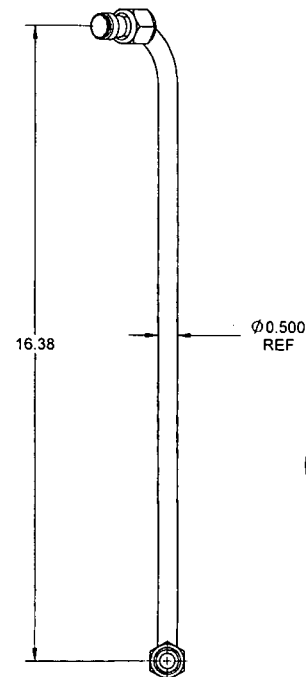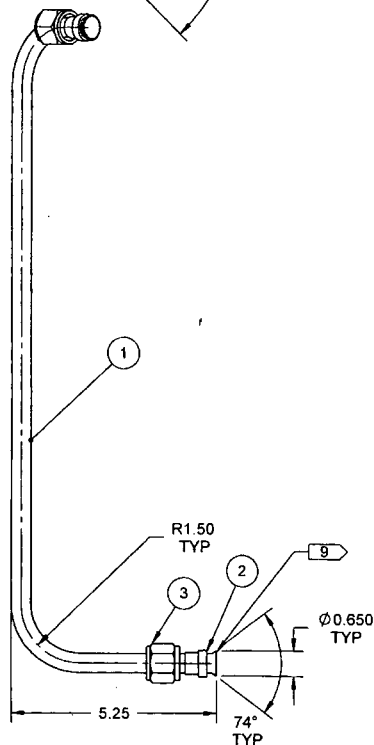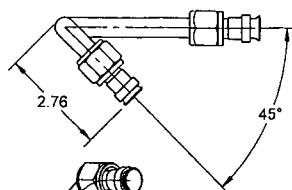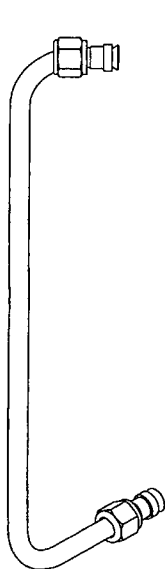
RELEASED
2010-01-14

NOTES:
1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.500 O.D. x 0.049 WALL
   PER WW-T-700/6
   REF DART SPEC M6061T60.500W.049
2) FINISH: NONE
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4054-003" USING FINE POINT PERMANENT INK MARKER
7) WEIGHT: 0.21 lbs
8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D4054-003T1
9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS, TYPICAL
10 ENSURE SEAMLESS TUBING IS USED

DESIGN	RF	**DART AEROSPACE LTD**	
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA	
CHECKED		DRAWING NO.	REV. A
MFG. APPR.		D4054	SHEET 2 OF 3
APPROVED		TITLE	SCALE
DE APPR.		TUBE ASSEMBLIES	NTS
DATE	09.12.30		

Dart Aerospace Ltd

| W/O:		**WORK ORDER CHANGES**						
DATE	**STEP**	**PROCEDURE CHANGE**	**By**	**Date**	**Qty**	**Approval** Chief Eng / Prod Mgr	**Approval** QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No   DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		**WORK ORDER NON-CONFORMANCE (NCR)**						
DATE	**STEP**	**Description of NC** Section A	**Corrective Action** Section B			**Verification** Section C	**Approval** Chief Eng	**Approval** QC Inspector
			Initial Chief Eng	**Action Description** Chief Eng	**Sign & Date**			

NOTE: Date & initial all entries

ITEM	QTY -009	P/N	DESCRIPTION
1	X	D4054-009	TUBE ASSEMBLY
2	1	MS20819-8D	SLEEVE
3	1	AN818-8D	NUT

Ø0.500
REF

③

①

②

9

0.650

74°

6.00
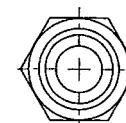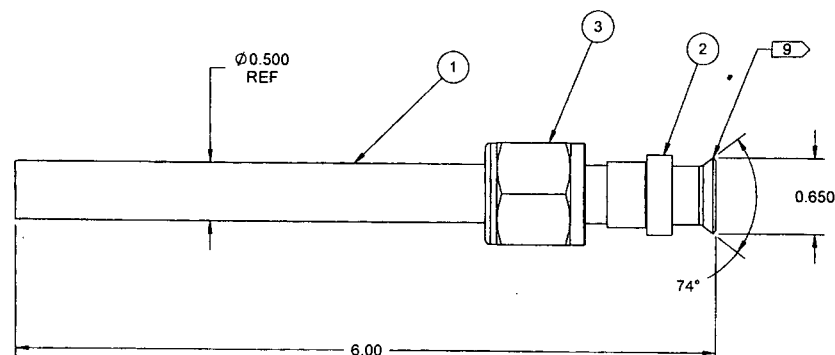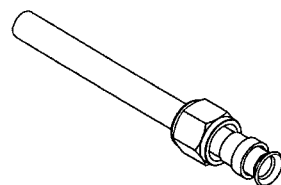
wlu
58157

D4054-009 TUBE ASSEMBLY

NOTES:
1) MATERIAL: 6061-T6 SEAMLESS ALUMINUM TUBING 0.500 O.D. x 0.049 WALL
        PER WW-T-700/6
        REF DART SPEC M6061T60.500W.049
2) FINISH: NONE
3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
4) UNITS: INCHES UNLESS OTHERWISE NOTED
5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
6) IDENTIFICATION: IDENTIFY WITH DART P/N "D4054-009" USING FINE POINT PERMANENT INK MARKER
7) WEIGHT: 0.07 lbs
8) TUBING ASSEMBLIES TO BE CUT AND BENT IN ACCORDANCE WITH TEMPLATE D4054-009T1
9) TUBES TO BE FLARED 37° TO MATE WITH MS33514 FITTINGS
10 ENSURE SEAMLESS TUBING IS USED

DESIGN	RF	**DART AEROSPACE LTD**		
DRAWN	RF	HAWKESBURY, ONTARIO, CANADA		
CHECKED		DRAWING NO.		REV. A
MFG. APPR.		D4054		SHEET 3 OF 3
APPROVED		TITLE		SCALE
DE APPR.		TUBE ASSEMBLIES		NTS
DATE	09.12.30	COPYRIGHT © 2009 BY DART AEROSPACE LTD		

Dart Aerospace Ltd

W/O:			WORK ORDER CHANGES						
DATE	STEP		PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:			WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP		Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
				Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

H:\fFORMS\Quality Assurance\approved QA\NCRWO RevE